

REMARKS

The support for the amendment to the claims is in the specification at page 3, lines 26 to 27. The new claims are supported by the specification at page 3, line 34 to page 4, line 9. The new claims are distinguishable from the applied prior art for at least the reason that the prior art does not show a combustion cavity adjacent a boiler and having a gas passage from the cavity to the boiler adjacent a narrow section, e.g., bull nose, of the boiler or using gases from the cavity to control nitrogen oxide emissions in the flue gas.

The rejection of claims 5 to 22, 26 and 27 as being anticipated by WO 92/18690 (WO '690) is traversed, and has been overcome by amendment.

Independent claims 5, 10, 19 as amended require the cooling tubes or water cooled walls of a superheater cavity that are formed of, at least partially, the cooling tubes or water cooled walls of the a boiler. Further, the cavity walls include water cooled tubes or walls that receive cooling fluid from the water/steam circulation system for the walls of the recovery boiler. In particular, these claims require:

- a “cavity having cavity walls formed of water cooled tubes in fluid communication with the water cooled tubes in at least one of the walls of the boiler and the water or steam circulation system, wherein at least a portion of the water cooled tubes of the at least one cavity is formed of the water cooled tubes of the walls of the boiler.” (Claim 5 as amended).
- a “cavity separate from the furnace and having walls formed of water cooled tubes, wherein fluid flowing through the water cooled tubes of the

wall defining the furnace flows through the water cooled tubes of the cavity and to the at least one superheater, and wherein at least a portion of the water cooled tubes of the at least one cavity are formed of the water cooled tubes of the walls of the boiler.” (Claim 10 as amended).

- “cooling a cavity wall of the cavity by flowing the cooling fluid from the wall of the boiler through the wall of the cavity, wherein the cavity wall having cooling fluid is at least partially formed of the wall of the boiler.” (Claim 19 as amended).

WO ‘690 does not disclose walls of a cavity that are: (1) cooled with the same water circulating through the walls of the boiler or (2) having water cooling tubes that are at least partially formed of the walls of the boiler. There is no suggestion in WO ‘690 that the superheating boiler and waste liquor recovery boiler share water cooled tubes or water cooled walls.

The reference in WO ‘690 (page 13, lns. 26-30) to “closely connected” pressure frames for the “separate” superheating boiler and the waste liquor recovery boiler is not a teaching that the walls of both boilers are cooled with the same water circulation system. In particular, WO ‘690 does not state that the walls of the cavity are cooling tubes in fluid communication with water cooled walls of a boiler. Further, it is not inherent that the walls of the superheating boiler in WO ‘690 are water cooled with water from water cooled walls of the boiler. Assuming that the superheating boiler of WO ‘690 has water

cooled walls, there is no reason to believe that the cooling water for the walls of the superheater is hot water flowing from the water cooled walls of the boiler.

The superheating surfaces 72 in WO ‘690 are not cooling tubes forming the walls of the superheating boiler. The disclosure in WO ‘690 (page 16, lns. 6-14) of superheating surfaces 72 states that such surfaces are “disposed in the superheating boiler” and does not state that the surfaces constitutes the walls of the boiler. The superheating surfaces 72 may be disposed within the superheating boiler and not form the walls of the boiler. By way of example, the present application discloses a superheater 24 (IV) that is distinct from the water cooled walls of the superheating cavity. Accordingly, the disclosure of a superheating boiler in WO ‘690 is not a suggestion that the walls of the superheating boiler are water cooled with water flowing from water cooled walls of the boiler. Claim 5 recites a cavity heat exchanger as a separate element to the water cooled tubes in the cavity wall and, thus, it is not proper to suggest that the superheater in WO ‘690 is the same water cooled walls in the boiler. Absent an express disclosure in WO ‘690 that the walls of the superheating boiler have water cooled tubes through which flows water from the walls of the superheating boiler, there is no anticipation of the independent claims 5, 10 and 19.

There is also no anticipation of claim 10 because WO ‘690 does not disclose a gasifier for gasifying a biomass material and said gasifier produces combustion gas provided to the fuel combustor of the cavity. Claim 10 has been amended to incorporate the limitation of cancelled claim 17 regarding the gasifier. WO ‘690 does not disclose a

gasifier providing combustion **gas** to the fuel combustor in the superheating boiler (18). WO '690 (page 15, lns. 30-36) discloses a hydrogenation stage (16) that supplies oil to a combustor in the superheating boiler. Oil is not a "combustion gas" and the hydrogenation stage is not a gasifier providing combustion gas. Accordingly, there is no anticipation of claim 10. WO '690 discloses the introduction of gas via line 35 from a pressure heating stage 14, but there is no suggestion that the gas from the pressure heating stage is combustible or the product of a gasifier.

There is also no anticipation of the dependent claims for at least the following reasons:

- WO '690 does not expressly or inherently a plurality of superheaters as called for in claim 12.
- WO '690 does not expressly or inherently teach forming the superheater from water cooled tubes of the walls of the boiler, as called for in amended claim 5 and claim 13.

The rejection of claims 5 to 7, 9 to 15 and 18 to 22 as being anticipated by Hamm (US Patent 2,606,103) is traversed.

Hamm does not disclose a superheating cavity having walls formed of water cooled tubes and does not disclose that water from a boiler feeds such non-existent water cooled tubes. In Hamm, the walls of the second furnace D are made of a refractory material ("refractory walls 12) and cooled by air. Hamm, col. 5, ln. 60 to col. 6, ln. 3.

Contrary to the Rejection, tubes 16, 17, 27 and 10 in Hamm are not water cooled walls. Rather tubes 16, 17, 27 and 10 form the super heaters in the second furnace D and recovery furnace. Hamm, col. 5, lns. 40-45. There is no anticipation because Hamm does not disclose:

- a “cavity having cavity walls formed of water cooled tubes in fluid communication with the water cooled tubes in at least one of the walls of the boiler and the water or steam circulation system, wherein at least a portion of the water cooled tubes of the at least one cavity is formed of the water cooled tubes of the boiler.” (Claim 5 as amended).
- a “cavity separate from the furnace and having walls formed of water cooled tubes, wherein fluid flowing through the water cooled tubes of the wall defining the furnace flows through the water cooled tubes of the cavity and to the at least one superheater, and wherein at least a portion of the water cooled tubes of the at least one cavity are part of the water cooled tubes of the walls of the boiler.” (Claim 10 as amended).
- “cooling a cavity wall of the cavity by flowing the cooling fluid from the wall of the boiler through the wall of the cavity, wherein the cavity wall having cooling fluid is at least partially part of the wall of the boiler.” (Claim 19 as amended).
- a plurality of superheaters as called for in claim 12.

- forming a superheater from water cooled tubes of the walls of the boiler, as called for in amended claim 5 and claim 13.

The rejection of dependent claims 23 to 25 for obviousness over WO '690 is traversed for the reasons stated above with respect to independent claim 19.

The rejection of claims 23 to 25 for obviousness over Hamm is traversed for the reasons stated above with respect to independent claim 19.

The rejection of claims 17, 26 and 27 for obviousness over Hamm in view of WO '690 is traversed for the reasons stated above for independent claims 10 and 19.

All claims are in good condition for allowance. If any small matter remains outstanding, the Examiner is requested to telephone applicants' attorney. Prompt reconsideration and allowance of this application is requested.

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed

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herewith (or with any paper hereafter filed in this application by this firm) to our Account
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Respectfully submitted,

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